PATENT
ATTORNEY DOCKET NO. 44574-5099-US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Alanna SCHEPARTZ SHRADER et al.	)	
	)	
Application No.:	)	Group Art Unit: Unassigned
(based on US 60/199,408)	)	
	)	
Filed: April 24, 2001	)	Examiner: Unassigned
	)	
For: DNA AND PROTEIN BINDING MINIATURE PROTEINS	)	

Commissioner for Patents
Washington, D.C. 20231
BOX SEQUENCE

STATEMENT ACCOMPANYING SEQUENCE LISTING

Dear Sir:

The undersigned hereby states upon information and belief that the Sequence Listing submitted concurrently herewith does not include matter which goes beyond the content of the application as filed and that the information recorded on the diskette submitted concurrently herewith is identical to the written Sequence Listing submitted herewith.

Respectfully submitted,
MORGAN, LEWIS & BOCKIUS LLP

Dated: April 24, 2001

By: Rosanne Kosson
Rosanne Kosson
Registration No. 46,840

Customer No. 09629
MORGAN, LEWIS & BOCKIUS LLP
1800 M Street, NW
Washington, D.C. 20036
Tel: 202-467-7000
Fax: 202-467-7258

SEQUENCE LISTING

<110> Schepartz Shrader, Alanna
Chin, Jason W. K.
Zutshi, Reena
Rutledge, Stacey E.
Kehlbeck Martin, Joanne D.
Zondlo, Neal J.

<120> DNA and Protein Binding Miniature Proteins

<130> 44574-5099-US

<140>
<141>

<150> US 60/199,408
<151> 2000-04-24

<150> US 60/240,566
<151> 2000-10-13

<150> US PROVISIONAL
<151> 2001-01-13

<150> US PROVISIONAL
<151> 2001-02-23

<160> 73

<170> PatentIn Ver. 2.1

<210> 1
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Recognition site of hsCRE24 protein

<400> 1
agtggagatg acagctactc gtgc 24

<210> 2
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Recognition site of hsCEBP24 protein

<400> 2
agtggagatt gcagctactc gtgc 24

<210> 3
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Recognition site of CRE24 protein

<400> 3
agtggagatg acgtcatctc gtgc 24

<210> 4
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Recognition site of CEBP24 protein

<400> 4
agtggagatt gcgcaatctc gtgc 24

<210> 5
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Competitor site in recognition studies

<400> 5
agtggagtaa ggcctatctc gtgc 24

<210> 6
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Segment of avian pancreatic polypeptide

<400> 6
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Ile Arg Phe Tyr Asn Asp Leu Gln Gln Tyr Leu Asn Val Val Thr
20 25 30

Arg His Arg Tyr
35

<210> 7
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Segment of GCN4 protein

<400> 7
Asp Pro Ala Ala Leu Lys Arg Ala Arg Asn Thr Glu Ala Ala Arg Arg
1 5 10 15

Ser Arg Ala Arg Lys Leu Gln Arg Met Lys Gln
20 25

<210> 8
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Pancreatic polypeptide basic region PPBR0

<400> 8
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Tyr Leu Ser Val Val Arg
20 25 30

Lys Leu Gln Arg Met Lys Gln
35

<210> 9
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Pancreatic polypeptide basic region PPBR10

<400> 9
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Tyr Leu Ser Arg Leu Arg
20 25 30

Lys Ala Ala Arg Ala Ala Ala
35

<210> 10
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Pancreatic polypeptide basic region PPBR11

<400> 10
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Leu Ser Arg Leu Arg
20 25 30

Lys Ala Ala Arg Ala Ala Ala
35

<210> 11
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Pancreatic polypeptide basic region PPBR2

<400> 11
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Leu Gln Arg Met Lys Gln
35

<210> 12
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Pancreatic polypeptide basic region PPBR4

<400> 12
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala Arg Ala Ala Ala
35

<210> 13
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: G27

<400> 13
Asp Pro Ala Ala Leu Lys Arg Ala Arg Asn Thr Glu Ala Ala Arg Arg
1 5 10 15

Ser Arg Ala Arg Lys Leu Gln Arg Met Gln Cys
20 25

<210> 14
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Pancreatic polypeptide basic region PPBR4-delta

<400> 14
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Leu Arg
20 25 30

Lys Ala Ala Arg Ala Ala Ala
35

<210> 15
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Variant pancreatic polypeptide basic region, Library A

<220>
<221> VARIANT
<222> (1)..(7)
<223> Xaa at positions 1, 4 and 7 = any amino acid.

<400> 15
Xaa Pro Ser Xaa Pro Thr Xaa Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala
35

<210> 16
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Variant pancreatic polypeptide basic region, Library B

<220>
<221> VARIANT
<222> (2)..(7)
<223> Xaa at positions 2, 4, 5 and 7 can be any amino acid.

<400> 16
Gly Xaa Ser Xaa Xaa Thr Xaa Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala
35

<210> 17
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Variant pancreatic polypeptide basic region, Lib. B, clone 007

<400> 17
Gly Gly Ser Arg Ala Thr Met Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala
35

<210> 18
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Variant pancreatic polypeptide basic region, Lib. B, clone 012

<400> 18
Gly Val Ser Val Gly Thr Arg Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala
35

<210> 19
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Variant pancreatic polypeptide basic region, Lib. B, clone 011

<400> 19
Gly Thr Ser Thr Gly Thr Arg Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala
35

<210> 20
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Variant pancreatic polypeptide basic region, Lib. B, clone 013

<400> 20
Gly Val Ser Ser Val Thr Trp Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Arg Lys Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala
35

<210> 21
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Variant pancreatic polypeptide basic region, Lib. B, clone 009

<400> 21
Gly Pro Ser Glu Gly Thr Glu Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala
35

<210> 22
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Variant pancreatic polypeptide basic region, Lib. B, clone 016

<400> 22
Gly Arg Ser His Gln Thr Trp Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Arg Phe Arg Asn Thr Leu Ala Ala Arg Arg Ser Arg Ala Arg
20 25 30

Lys Ala Ala
35

<210> 23
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide 4100

isolated from BakLib

<400> 23
Phe Val Gly Arg Leu Leu Arg Tyr Phe Gly Asp Glu Ile Asn Arg
1 5 10 15

<210> 24
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide 4101
isolated from BakLib

<400> 24
Phe Val Gly Arg Leu Leu Ala Tyr Phe Gly Asp Asp Ile Asn Arg
1 5 10 15

<210> 25
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide 4099
isolated from BakLib

<400> 25
Phe Val Gly Arg Leu Leu Ala Tyr Phe Gly Asp Thr Ile Asn Arg
1 5 10 15

<210> 26
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide 4102
isolated from BakLib

<400> 26
Phe Val Ser Arg Leu Arg Tyr Ile Ala Asp Leu Ile Asn Arg
1 5 10

<210> 27
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

isolated from BakLib

<400> 27
Phe Val Arg Arg Leu Leu Gly Tyr Ile Asp Asp Ile Ile Asn Arg
1 5 10 15

<210> 28
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide isolated from BakLib

<400> 28
Phe Val Leu Arg Leu Leu Trp Tyr Ile Pro Asp Gly Ile Asn Arg
1 5 10 15

<210> 29
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide isolated from BakLib

<400> 29
Phe Val Arg Arg Leu Leu Val Tyr Ile Trp Asp Asp Ile Asn Arg
1 5 10 15

<210> 30
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Consensus sequence for peptides isolated from BakLib

<220>
<221> VARIANT
<222> (3)..(12)
<223> Xaa at positions 3, 7, 10 and 12 can be any amino acid.

<400> 30
Phe Val Xaa Arg Leu Leu Xaa Tyr Ile Xaa Asp Xaa Ile Asn Arg
1 5 10 15

<210> 31

<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: p53 miniature protein p53AD

<400> 31
Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro
1 5 10

<210> 32
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: p53 miniature protein, Library 1 consensus sequence

<220>
<221> VARIANT
<222> (21)..(31)
<223> Xaa at positions 21, 23, 25, 30, 31 = any amino acid.

<400> 32
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Ile Arg Phe Xaa Phe Xaa Leu Xaa Trp Tyr Leu Leu Xaa Xaa
20 25 30

<210> 33
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: p53 miniature protein, Lib. 1, clone p3254

<400> 33
Leu Ile Arg Phe Gln Phe Ala Leu Arg Trp Tyr Leu Leu Pro Met
1 5 10 15

<210> 34
<211> 15
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: p53 miniature protein, Lib. 1, clone p3255

<400> 34
Leu Ile Arg Phe Gln Phe Gly Leu Gly Trp Tyr Leu Leu Ala Met
1 5 10 15

<210> 35
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: p53 miniature protein, Lib. 1, clone p3548

<400> 35
Leu Ile Arg Phe Gln Phe Pro Leu Arg Trp Tyr Leu Leu Trp Ala
1 5 10 15

<210> 36
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: p53 miniature protein, Lib. 1, clone p3559

<400> 36
Leu Ile Arg Phe Lys Phe Leu Leu Gln Trp Tyr Leu Leu Ala Leu
1 5 10 15

<210> 37
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: p53 miniature protein, Lib. 1, clone p3257

<400> 37
Leu Ile Arg Phe Ser Phe Ala Leu Gln Trp Tyr Leu Leu Gly Glu
1 5 10 15

<210> 38
<211> 31
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Universal library 1 consensus sequence for pancreatic peptide basic region

<220>
<221> VARIANT
<222> (21)..(29)
<223> Xaa at positions 21-23, 25, 26, 29 = any amino acid.

<400> 38
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Ile Arg Phe Xaa Xaa Xaa Leu Xaa Xaa Tyr Leu Xaa Val Val
20 25 30

<210> 39
<211> 142
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning primer APP.TS

<400> 39
ctatgcggcc cagccggccg gtccgtccca gccgacctac ccgggtgacg acgcaccggt 60
tgaagatctg atccgtttct acaacgacct gcagcagtac ctgaacgttg ttacccgtca 120
ccgttacgcg gccgcaggtg cg 142

<210> 40
<211> 87
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning primer APP.BS

<400> 40
ctatgcggcc cagccggccg gtccgtccca gccgacctac cccgggtgac gacgcaccgg 60
ttgaagatct gatccgtttc tacaacg 87

<210> 41
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer

<400> 41

ctatgcggcc cagccggccg g 21

<210> 42
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer

<400> 42
cgcacctgcg gccgcgtaac g 21

<210> 43
<211> 83
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning primer PPBR4TS

<400> 43
gatctgaagc gctttcgtaa caccctggct gcgcgccgtt cccgtgcacg taaagctgca 60
cgtgctgcag ctggtggttg cgc 83

<210> 44
<211> 103
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning primer PPBR4BS

<400> 44
cgcacctgcg gccgcgcaac caccagctgc agcacgtgca gctttacgtg cacgggaacg 60
gcgcgcagcc agggtgttac gaaagcgctt cagatcttca acc 103

<210> 45
<211> 96
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligonucleotide for constructing library

<220>
<221> variation
<222> (40)..(69)
<223> n at positions 40, 41, 52, 53, 61, 62, 67, 68 =

any nucleotide; s at positions 42, 54, 63, 69 = c or g.

<400> 45
ggtgacgacg caccggttga agatctgatc cgctttgttn nscgtctgct gnnstacatc 60
nnsgacnnsa tcaaccgtcg tgcggccgca ggtgcg 96

<210> 46
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
Oligonucleotide for constructing library

<400> 46
cgcacctgcg gcggcacgac g 21

<210> 47
<211> 41
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPEBP1,
polyproline-enhancer binding protein

<400> 47
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Tyr Asp
1 5 10 15

Leu Ile Arg Phe Arg Asn Asn Leu Ala Val Arg Lys Ser Arg Val Lys
20 25 30

Ala Lys Arg Arg Asn Gln Gly Gly Cys
35 40

<210> 48
<211> 41
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPEBP2,
polyproline-enhancer binding protein

<400> 48
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Glu Tyr Arg
1 5 10 15

Leu Arg Arg Phe Arg Asn Asn Leu Ala Val Arg Lys Ser Arg Val Lys
20 25 30

Ala Lys Arg Arg Asn Gln Gly Gly Cys
35 40

<210> 49
<211> 41
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPEBP3,
polyproline-enhancer binding protein

<400> 49
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Tyr Asp
1 5 10 15

Leu Ile Arg Phe Arg Asn Asn Leu Ala Val Tyr Leu Ser Val Val Lys
20 25 30

Ala Lys Arg Arg Asn Gln Gly Gly Cys
35 40

<210> 50
<211> 41
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPEBP4,
polyproline-enhancer binding protein

<400> 50
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Ala Arg
1 5 10 15

Leu Arg Arg Phe Ala Ala Thr Leu Ala Ala Ala Ala Ser Ala Ala Lys
20 25 30

Ala Lys Arg Arg Asn Gln Gly Gly Cys
35 40

<210> 51
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: EBP1,
polyproline-enhancer binding protein

<400> 51
Val Tyr Asp Leu Ile Arg Phe Arg Asn Asn Leu Ala Val Arg Lys Ser
1 5 10 15

Val Val Lys Ala Lys Arg Arg Asn Gln Gly Gly Cys
20 25

<210> 52
<211> 41
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Delta-PPEBP1, polyproline-enhancer binding protein

<400> 52
Gly Pro Ser Trp Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Tyr Asp
1 5 10 15

Leu Ile Arg Phe Arg Asn Asn Leu Ala Val Arg Lys Ser Val Val Lys
20 25 30

Ala Lys Arg Arg Asn Gln Gly Gly Cys
35 40

<210> 53
<211> 34
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPMyo1, Myo D peptide

<400> 53
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Arg Arg Phe Tyr Asp Thr Leu Arg Glu Arg Arg Arg Val Val Gly
20 25 30

Gly Cys

<210> 54
<211> 34
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPMyo2, MyoD peptide

<400> 54
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Arg Arg Phe Tyr Asp Thr Leu Arg Glu Tyr Leu Arg Val Val Gly
20 25 30

Gly Cys

<210> 55
<211> 34
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPMyo3, MyoD peptide

<400> 55
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Arg Arg Phe Tyr Asp Thr Leu Arg Glu Tyr Arg Arg Val Val Gly
20 25 30

Gly Cys

<210> 56
<211> 34
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPMyo4, MyoD peptide

<400> 56
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Arg Arg Phe Tyr Asp Thr Leu Arg Glu Arg Leu Arg Val Val Gly
20 25 30

Gly Cys

<210> 57
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPeng1, Q50K engrailed variant peptide

<400> 57
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Lys Ile Trp
1 5 10 15

Leu Lys Asn Phe Arg Asp Lys Leu Lys Lys Tyr Leu Asn Val Val
20 25 30

<210> 58
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPeng2, Q50K engrailed variant peptide

<400> 58
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Lys Ile Trp
1 5 10 15

Leu Lys Asn Phe Arg Ala Lys Leu Lys Lys Tyr Leu Asn Val Val
20 25 30

<210> 59
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPeng3, Q50K engrailed variant peptide

<400> 59
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Ile Phe Tyr Lys Asn Leu Arg Gln Tyr Leu Lys Val Val
20 25 30

<210> 60
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPeng4, Q50K engrailed variant peptide

<400> 60
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Glu Asp
1 5 10 15

Leu Lys Ile Phe Phe Lys Asn Leu Arg Ala Lys Leu Lys Lys Val

20 25 30

<210> 61
<211> 43
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPFos1, Fos peptide

<400> 61
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Leu Glu
1 5 10 15

Leu Glu Asn Phe Tyr Leu Asn Leu Glu Ile Tyr Leu Leu Val Val Glu
20 25 30

Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala Tyr
35 40

<210> 62
<211> 43
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPFos2, Fos peptide

<400> 62
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Leu Glu
1 5 10 15

Leu Glu Lys Phe Tyr Leu Asn Leu Glu Ile Tyr Leu Leu Val Val Glu
20 25 30

Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala Tyr
35 40

<210> 63
<211> 50
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPFos3, Fos peptide

<400> 63
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Leu Asp
1 5 10 15

Leu Glu Thr Phe Tyr Leu Glu Leu Glu Asn Tyr Leu Leu Val Val Glu
20 25 30

Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala
35 40 45

Ala Tyr
50

<210> 64
<211> 50
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPFos4, Fos peptide

<400> 64
Gly Pro Ser Gln Pro Thr Tyr Pro Gly Asp Asp Ala Pro Val Leu Asp
1 5 10 15

Leu Glu Thr Phe Tyr Leu Glu Leu Glu Lys Tyr Leu Leu Val Val Glu
20 25 30

Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala
35 40 45

Ala Tyr
50

<210> 65
<211> 5
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: CRE half-site promoter

<400> 65
atgac 5

<210> 66
<211> 5
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: C/EBP half-site promoter

<400> 66

attgc 5

<210> 67
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: C/EBP protein binding site

<400> 67
attgcgcaat 10

<210> 68
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: CRE protein binding site

<400> 68
atgacgtcat 10

<210> 69
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Transcription-activating miniature protein, consensus sequence

<220>
<221> VARIANT
<222> (2)..(8)
<223> Xaa at positions 2, 4, 5, 7, 8 = any amino acid.

<400> 69
Gly Xaa Ser Xaa Xaa Thr Xaa Xaa Gly Asp Asp Ala Pro Val Arg Arg
1 5 10 15

Leu Ser Phe Phe Tyr Ile Leu Leu Asp Leu Tyr Leu Asp Ala Pro
20 25 30

<210> 70
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPKID1,
transcription-activating miniature protein

<400> 70
Gly Ala Ser Asp Met Thr Tyr Trp Gly Asp Asp Ala Pro Val Arg Arg
1 5 10 15

Leu Ser Phe Phe Tyr Ile Leu Leu Asp Leu Tyr Leu Asp Ala Pro
20 25 30

<210> 71
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPKID2,
transcription-activating miniature protein

<400> 71
Gly Met Ser Arg Val Thr Pro Gly Gly Asp Asp Ala Pro Val Arg Arg
1 5 10 15

Leu Ser Phe Phe Tyr Ile Leu Arg Asp Leu Tyr Leu Asp Ala Pro
20 25 30

<210> 72
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PPKID3,
transcription-activating miniature protein

<400> 72
Gly Ala Ser Pro His Thr Ser Ser Gly Asp Asp Ala Pro Val Arg Arg
1 5 10 15

Leu Ser Phe Phe Asp Ile Leu Leu Asp Leu Tyr Leu Asp Ala Pro
20 25 30

<210> 73
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: BH3 domain of
Bak peptide

<400> 73

```
Gly Gln Val Gly Arg Gln Leu Ala Ile Ile Gly Asp Asp Ile Asn Arg
 1               5                  10                  15
```